



229704



January 10, 2005

Mr. Nabil S. Fayoumi
U. S. EPA - Region 5
77 West Jackson Boulevard (SR-6J)
Chicago, Illinois 60604-3590

**Re: Sauget Area 2 Site – October 3, 2002 Unilateral Administrative Order
(UAO) Groundwater Operable Unit
Monthly Report; December 1 - December 31, 2004 Reporting Period**

Dear Nabil:

Attached is the Monthly Report for the Sauget Area 2 Site October 3, 2002 Unilateral Administrative Order (UAO) - Groundwater Operable Unit. This submittal is in fulfillment of the monthly reporting requirements of the UAO, Section XII, paragraph 62, Progress Reports. This report is for the period December 1 – December 31, 2004.

Sincerely,

Steven D. Smith
Project Coordinator

cc: Ken Bardo, - U. S. EPA
Mayor Sauget - Sauget, IL
Sandra Bron – IEPA
Mike Coffey - USFWS
Village of Sauget – c/o P. H. Weis & Associates (Attn: Brian Nelson)
Mayor Frank Bergman – Cahokia
L. Glen Kurowski - Monsanto
Cathleen Bumb – Solutia
Linda Tape - Husch & Eppenberger
Richard Williams – Solutia

Sauget Area 2 Site - Sauget, Illinois

October 3, 2002 UAO – Groundwater Operable Unit

Status Report

Date of Report: January 10, 2005
Period Covered: December 1 - December 31, 2004

Agency Actions / Communications

In an e-mail message dated June 19, 2003, U. S. EPA requested the submission of revised versions of the Focused Feasibility Study, the Remedial Design Work Plan, and the Pre-Final (95%) Remedial Design. The revisions were required to allow the use of a slurry wall rather than jet grouting for construction of the barrier wall. The revised documents were submitted on July 3, 2003. The ESD was issued by US EPA on July 30, 2003. The Final Design Submittals were approved by EPA on October 16, 2003.

Work Performed During the Reporting Period

Slurry Wall

- Stabilization of the excess slurry by the addition of cement (nominally 10 percent by weight) continued during the reporting period and will continue into January, weather permitting. Progress was severely hampered by rain during the entire month.
- Site cleanup and final grading were completed in the southern half of the site. Excavation of the upper three feet of backfill along the wall for construction of the cap continued. By the end of the reporting period, the only incomplete section of the cap was between Stations 25+25 and 26+00. This will be completed as soon as the weather permits. Cleanup activities were also completed on the north side of the site, along Riverview Avenue.
- Demobilization of equipment and labor that are no longer needed on the project continued during the month.
- All outstanding QA/QC test results were received and all satisfy the project specifications and guidelines.

- The Agreement with the slurry wall contractor, Inquip Associates, was terminated with an effective date of the later of December 31, 2004, or as soon as possible thereafter upon completion of the slurry wall cap. A contract with a local construction contractor, Philip Environmental Services Corporation (PSC), was signed on December 21, 2004 and PSC will complete the stabilization and grading activities that remain to be done at the site. PSC assumed responsibility for stormwater management at the site on December 31, 2004.

Groundwater Treatment

- For the entire month, the system was operated in such a way as to maintain the water levels inside the wall equal to, or lower, than the river level. Towards the end of the month, the river level was extremely low and the water levels in the inside members of piezometer pairs PZ -2 and PZ-3 exceeded the water levels in the outside members. However, an inward gradient was maintained across the northern and southern arms of the barrier wall, at piezometer pairs PZ-1 and PZ-4, at all times, demonstrating that groundwater discharge was under control during the entire period.
- A report summarizing the piezometer maintenance and replacement activities completed during the month of October was submitted to the Agencies on November 9, 2004. That report also contained recommendations for future operation of the groundwater extraction system. The contents of the report were summarized at a meeting held at the site on November 16th. The following maintenance activities still remain to be completed:
 - Redevelopment of all piezometers.
 - Replacement of all piezometer sensors with more robust and sensitive sensors. The new sensors will be between 5 and 10 times more sensitive than the existing installations. The equipment has been received and installation will begin as soon as the piezometers have been redeveloped in January.
 - Installation of remotely actuated plug valves on the discharge lines from each extraction well. This will allow control of the flow rates from the individual wells during low flow conditions (less than 100 gpm per well).

The report also provided recommendations for future operation of the groundwater extraction system. Because of rapid changes in the river levels and the interdependence of the individual piezometer levels, it has proven impossible to develop an algorithm that will reliably control the pumping rate such that individual piezometer pairs will show zero gradients across the wall at all times. However, we have developed an algorithm that can be used to control the pumping rate such that the median groundwater level inside the wall is less than, or equal to, the median level outside the wall. It is Solutia's belief that this is the

functional equivalent of the ROD requirements and, as such, satisfies those requirements. Consequently, it was proposed that the system be operated for 90 days, during which time, the median groundwater level inside the wall would be kept below, or at the same level, as the river. This would allow time to optimize the control algorithm to account for the effects of the wall. At the end of the 90 day period, a report would be submitted to the agencies. That report would contain a review all of the piezometric responses measured during the 90 day period and would evaluate whether groundwater discharge to the river can be controlled by use of median groundwater levels.

- After EPA review of the report , it requested that the system be operated for the proposed 90 day period in such a way that the inside piezometric level at each piezometer pair is equal to, or less than, the level in the corresponding outside member of the pair.
- Daily average pumping data for each well are attached, together with the daily average piezometric levels.

Schedule

A new construction schedule was submitted in April showing backfill completion by the middle of November. This schedule was satisfied.

Submittals During Reporting Period

There were no submittals to the Agency during the reporting period.

Work Scheduled for Next Reporting Period

- Continue pumping and treating groundwater based on piezometric levels. Flow rates will be controlled such that the water level in each of the piezometers inside the barrier wall is less than, or equal to, the water level in the corresponding piezometer outside the wall.
- Finish constructing the cap on the slurry wall.
- Complete mobilization of PSC construction equipment and labor.
- Complete demobilization of Inquip equipment and labor.
- Continue final site cleanup.
- Continue solidifying excess slurry in the containment cell on top of Site R.

PUMPING DATA

		PUMPING RATE				GROUNDWATER LEVEL (INSIDE) COMPARED TO SURFACE WATER LEVEL						
Date/Time		Total Q	EW-1 Q	EW-2 Q	EW-3 Q	SWL	PZ- 1_INSIDE	Delta	PZ- 2_INSIDE	Delta	PZ- 3_INSIDE	Delta
12/1/04	Daily Average	196.3	0.3	196.1	-0.1	395.3	389.5	-5.8	390.5	-4.8	389.6	-5.7
12/2/04	Daily Average	239.4	48.9	142.0	48.5	394.8	389.1	-5.7	390.5	-4.3	389.7	-5.1
12/3/04	Daily Average	318.7	104.8	109.1	104.8	393.9	388.5	-5.3	390.3	-3.6	389.5	-4.4
12/4/04	Daily Average	450.0	134.9	183.5	131.6	392.9	388.3	-4.6	390.0	-3.0	389.2	-3.7
12/5/04	Daily Average	599.0	165.5	270.4	163.1	391.5	388.1	-3.4	389.7	-1.8	388.9	-2.7
12/6/04	Daily Average	1097.2	219.7	581.3	296.2	391.1	387.2	-3.9	388.5	-2.6	387.4	-3.7
12/7/04	Daily Average	668.3	148.7	339.7	179.9	394.3	387.8	-6.5	389.2	-5.1	388.5	-5.8
12/8/04	Daily Average	156.1	52.8	51.8	51.5	398.0	389.3	-8.7	391.0	-7.0	390.5	-7.5
12/9/04	Daily Average	29.3	29.2	0.4	-0.2	397.8	390.1	-7.7	391.8	-6.0	391.5	-6.3
12/10/04	Daily Average	20.2	20.1	0.3	-0.3	397.0	390.4	-6.6	392.1	-4.9	391.6	-5.4
12/11/04	Daily Average	13.6	13.6	0.3	-0.3	395.3	390.5	-4.9	392.1	-3.2	391.6	-3.8
12/12/04	Daily Average	364.5	114.3	142.0	108.2	393.8	389.9	-3.9	391.6	-2.2	390.7	-3.1
12/13/04	Daily Average	592.10	195.79	207.24	189.07	393.04	388.93	-4.11	390.67	-2.37	389.79	-3.25
12/14/04	Daily Average	722.46	258.60	304.22	159.64	392.34	388.44	-3.90	390.22	-2.12	389.59	-2.75
12/15/04	Daily Average	861.18	344.15	343.18	173.86	391.81	388.00	-3.81	389.92	-1.90	389.53	-2.28
12/16/04	Daily Average	1218.44	487.46	487.60	243.39	391.41	386.63	-4.79	388.70	-2.71	388.50	-2.91
12/17/04	Daily Average	855.88	340.78	358.09	157.00	390.88	387.46	-3.42	389.44	-1.44	389.06	-1.82
12/18/04	Daily Average	1444.68	577.88	577.85	288.96	389.88	385.91	-3.97	388.00	-1.88	387.88	-2.00
12/19/04	Daily Average	1390.93	555.99	555.87	279.08	389.92	385.56	-4.36	387.69	-2.23	387.55	-2.37
12/20/04	Daily Average	1802.45	632.72	719.38	450.36	388.88	384.96	-3.92	386.95	-1.93	386.10	-2.79
12/21/04	Daily Average	1738.36	604.91	706.98	426.47	388.37	384.58	-3.78	386.54	-1.83	386.06	-2.31
12/22/04	Daily Average	1869.74	701.97	724.36	443.40	387.32	383.85	-3.47	385.98	-1.34	385.72	-1.60
12/23/04	Daily Average	2164.43	745.74	718.70	699.99	385.08	383.06	-2.02	385.18	0.10	383.99	-1.09
12/24/04	Daily Average	2173.75	754.77	719.00	699.99	383.40	382.69	-0.71	384.83	1.43	383.49	0.09
12/25/04	Daily Average	2170.58	752.05	718.52	700.01	383.65	382.48	-1.18	384.62	0.96	383.30	-0.35
12/26/04	Daily Average	2168.76	751.09	717.68	700.00	384.12	382.10	-2.02	384.25	0.13	382.99	-1.13
12/27/04	Daily Average	2169.85	752.40	717.45	700.00	383.99	381.90	-2.09	384.06	0.07	382.80	-1.19
12/28/04	Daily Average	2169.80	752.60	717.20	700.00	384.06	381.89	-2.17	384.04	-0.02	382.80	-1.26
12/29/04	Daily Average	2163.40	746.50	716.90	700.00	383.70	381.70	-2.00	383.80	0.10	382.60	-1.10
12/30/04	Daily Average	2162.27	745.91	716.38	699.99	383.53	381.58	-1.95	383.71	0.18	382.49	-1.05
12/31/04	Daily Average	2161.46	745.83	715.61	700.02	382.70	381.28	-1.43	383.41	0.70	382.14	-0.57

Date/Time		PZ- 4_INSIDE Delta		GROUNDWATER LEVEL (OUTSIDE) COMPARED TO GROUNDWATER LEVEL (INSIDE)								
				PZ- 1_OUTSI DE	PZ- 1_INSIDE	Delta	PZ- 2_OUTSI DE	PZ- 2_INSIDE	Delta	PZ- 3_OUTSI DE	PZ- 3_INSIDE	Delta
12/1/04	Daily Average	389.7	-5.6	392.6	389.5	-3.1	394.0	390.5	-3.5	393.2	389.6	-3.6
12/2/04	Daily Average	389.9	-4.9	392.5	389.1	-3.4	393.6	390.5	-3.0	392.9	389.7	-3.1
12/3/04	Daily Average	389.7	-4.2	392.0	388.5	-3.5	392.6	390.3	-2.3	392.0	389.5	-2.6
12/4/04	Daily Average	389.6	-3.4	391.6	388.3	-3.3	391.8	390.0	-1.8	391.3	389.2	-2.1
12/5/04	Daily Average	389.4	-2.2	390.9	388.1	-2.8	390.5	389.7	-0.8	390.1	388.9	-1.3
12/6/04	Daily Average	388.3	-2.8	390.6	387.2	-3.3	390.0	388.5	-1.5	389.6	387.4	-2.1
12/7/04	Daily Average	388.9	-5.4	392.1	387.8	-4.3	392.8	389.2	-3.6	392.1	388.5	-3.6
12/8/04	Daily Average	390.5	-7.5	394.3	389.3	-5.0	396.3	391.0	-5.3	395.4	390.5	-4.8
12/9/04	Daily Average	391.4	-6.4	394.7	390.1	-4.5	396.3	391.8	-4.5	395.5	391.5	-4.0
12/10/04	Daily Average	391.6	-5.4	394.3	390.4	-4.0	395.6	392.1	-3.5	394.8	391.6	-3.2
12/11/04	Daily Average	391.7	-3.7	393.5	390.5	-3.0	394.1	392.1	-2.0	393.6	391.6	-2.0
12/12/04	Daily Average	391.2	-2.6	392.7	389.9	-2.7	392.6	391.6	-1.0	392.2	390.7	-1.6
12/13/04	Daily Average	390.20	-2.84	392.08	388.93	-3.15	391.82	390.67	-1.15	391.44	389.79	-1.65
12/14/04	Daily Average	390.17	-2.17	391.63	388.44	-3.20	391.23	390.22	-1.02	390.84	389.59	-1.25
12/15/04	Daily Average	390.19	-1.62	391.38	388.00	-3.38	390.76	389.92	-0.84	390.46	389.53	-0.93
12/16/04	Daily Average	389.34	-2.07	391.09	386.63	-4.46	390.38	388.70	-1.68	390.02	388.50	-1.52
12/17/04	Daily Average	389.75	-1.13	390.82	387.46	-3.36	389.94	389.44	-0.50	389.71	389.06	-0.65
12/18/04	Daily Average	388.93	-0.96	390.18	385.91	-4.27	388.96	388.00	-0.96	388.75	387.88	-0.87
12/19/04	Daily Average	388.53	-1.40	390.04	385.56	-4.48	388.98	387.69	-1.29	388.68	387.55	-1.13
12/20/04	Daily Average	387.68	-1.20	389.53	384.96	-4.57	388.04	386.95	-1.09	387.83	386.10	-1.73
12/21/04	Daily Average	387.20	-1.17	389.06	384.58	-4.48	387.50	386.54	-0.97	387.30	386.06	-1.24
12/22/04	Daily Average	386.95	-0.38	388.43	383.85	-4.58	386.61	385.98	-0.63	386.43	385.72	-0.71
12/23/04	Daily Average	385.30	0.21	387.14	383.06	-4.08	384.57	385.18	0.62	384.44	383.99	-0.45
12/24/04	Daily Average	384.88	1.48	386.10	382.69	-3.41	383.03	384.83	1.80	382.95	383.49	0.54
12/25/04	Daily Average	384.70	1.05	386.03	382.48	-3.55	383.04	384.62	1.58	382.99	383.30	0.31
12/26/04	Daily Average	384.34	0.22	386.15	382.10	-4.05	383.53	384.25	0.72	383.35	382.99	-0.37
12/27/04	Daily Average	384.18	0.18	386.00	381.90	-4.09	383.34	384.06	0.72	383.20	382.80	-0.40
12/28/04	Daily Average	384.16	0.10	385.99	381.89	-4.10	383.44	384.04	0.60	383.30	382.80	-0.50
12/29/04	Daily Average	383.90	0.20	385.70	381.70	-4.00	383.00	383.80	0.80	382.90	382.60	-0.40
12/30/04	Daily Average	383.84	0.30	385.58	381.58	-4.00	382.94	383.71	0.77	382.86	382.49	-0.37
12/31/04	Daily Average	383.51	0.80	384.99	381.28	-3.71	382.15	383.41	1.25	382.03	382.14	0.11

Date/Time		PZ- 4_OUTSI DE	PZ- 4_INSIDE	Delta
12/1/04	Daily Average	392.4	389.7	-2.6
12/2/04	Daily Average	392.2	389.9	-2.4
12/3/04	Daily Average	391.8	389.7	-2.1
12/4/04	Daily Average	391.4	389.6	-1.8
12/5/04	Daily Average	390.7	389.4	-1.3
12/6/04	Daily Average	390.3	388.3	-2.0
12/7/04	Daily Average	391.7	388.9	-2.8
12/8/04	Daily Average	394.0	390.5	-3.5
12/9/04	Daily Average	394.3	391.4	-2.9
12/10/04	Daily Average	394.0	391.6	-2.3
12/11/04	Daily Average	393.3	391.7	-1.6
12/12/04	Daily Average	392.5	391.2	-1.3
12/13/04	Daily Average	391.87	390.20	-1.66
12/14/04	Daily Average	391.48	390.17	-1.31
12/15/04	Daily Average	391.23	390.19	-1.04
12/16/04	Daily Average	390.94	389.34	-1.60
12/17/04	Daily Average	390.69	389.75	-0.94
12/18/04	Daily Average	390.07	388.93	-1.14
12/19/04	Daily Average	389.91	388.53	-1.39
12/20/04	Daily Average	389.38	387.68	-1.70
12/21/04	Daily Average	388.88	387.20	-1.68
12/22/04	Daily Average	388.32	386.95	-1.37
12/23/04	Daily Average	387.05	385.30	-1.76
12/24/04	Daily Average	386.05	384.88	-1.16
12/25/04	Daily Average	385.92	384.70	-1.22
12/26/04	Daily Average	385.96	384.34	-1.62
12/27/04	Daily Average	385.77	384.18	-1.59
12/28/04	Daily Average	385.82	384.16	-1.66
12/29/04	Daily Average	385.50	383.90	-1.60
12/30/04	Daily Average	385.44	383.84	-1.60
12/31/04	Daily Average	384.84	383.51	-1.33